

Claims

What is claimed is:

- 1 1. A method for creating customized mesh planes in electronic
2 packages comprising the steps of:
3 receiving electronic package physical design data;
4 comparing signal traces in each adjacent plane to a mesh plane with
5 a mesh layout of the mesh plane;
6 identifying signal traces adjacent to mesh holes in the mesh layout;
7 selecting a fill method to replace selected mesh holes with added
8 mesh structure aligned with the identified signal traces.

- 1 2. A method for creating customized mesh planes as recited in
2 claim 1 wherein the step of selecting said fill method includes the steps of
3 providing a plurality of fill methods, said fill methods including selected ones
4 of a crosshair fill method, a single line fill method, a signal mirror fill method,
5 a mesh shifting fill method, a corner fill method, and a complete fill method;
6 and selecting one or a combination of said fill methods.

- 1 3. A method for creating customized mesh planes as recited in
2 claim 1 wherein the step of selecting said fill method includes selecting a
3 crosshair fill method to replace selected mesh holes with a crosshair mesh
4 structure aligned with the identified signal traces.

- 1 4. A method for creating customized mesh planes as recited in
2 claim 1 wherein the step of selecting said fill method includes selecting a
3 single line fill method to replace selected mesh holes with a single line mesh
4 structure aligned with the identified signal traces.

- 1 5. A method for creating customized mesh planes as recited in
2 claim 1 wherein the step of selecting said fill method includes selecting a
3 corner fill method to replace selected mesh holes with a corner fill mesh
4 structure aligned with the identified signal traces.

1 6. A method for creating customized mesh planes as recited in
2 claim 1 wherein the step of selecting said fill method includes selecting a
3 complete fill method to replace selected mesh holes with a complete fill
4 mesh structure aligned with the identified signal traces.

1 7. A method for creating customized mesh planes as recited in
2 claim 1 wherein the step of selecting said fill method includes selecting a
3 signal mirror fill method to replace selected mesh holes with a signal mirror
4 mesh structure substantially aligned with all of the signal traces.

1 8. A method for creating customized mesh planes as recited in
2 claim 1 wherein the step of selecting said fill method includes selecting a
3 crosshair fill method to replace selected mesh holes with a crosshair mesh
4 structure aligned with the identified signal traces; and a single line fill method
5 to replace other selected mesh holes with a single line mesh structure
6 aligned with the identified signal traces.

1 9. A customized mesh plane created by comparing signal traces
2 in each adjacent plane to a mesh plane with a mesh layout; and identifying
3 signal traces adjacent to mesh holes in the mesh layout comprising:
4 a grid mesh plane defined by a plurality of uniformly spaced apart
5 horizontal mesh traces and a plurality of uniformly spaced apart vertical
6 mesh traces; and
7 a selected fill structure added to the mesh plane replacing selected
8 mesh holes adjacent to the identified signal traces.

1 10. A customized mesh plane as recited in claim 9 wherein said
2 selected fill structure includes at least one of a crosshair mesh structure, a
3 single line mesh structure, a signal mirror mesh structure, a mesh shifting
4 mesh structure, a corner mesh structure, and a complete mesh structure.

1 11. A computer program product for creating customized mesh
2 planes in electronic packages in a computer system, said computer program
3 product including instructions executed by the computer system to cause the
4 computer system to perform the steps of:
5 receiving electronic package physical design data;
6 comparing signal traces in each adjacent plane to a mesh plane with
7 the mesh layout;
8 identifying signal traces adjacent to mesh holes in the mesh layout;
9 selecting a fill method to replace selected mesh holes with added
10 mesh structure aligned with the identified signal traces.

1 12. A computer program product for creating customized mesh
2 planes as recited in claim 11 includes the step of storing said fill method,
3 said fill method including selected ones of a crosshair fill method, a single
4 line fill method, a signal mirror fill method, a mesh shifting fill method, a
5 corner fill method, and a complete fill method.

1 13. A computer program product for creating customized mesh
2 planes as recited in claim 12 wherein the step of selecting said fill method
3 includes the steps of selecting one or a combination of said stored fill
4 methods.

1 14. A computer program product for creating customized mesh
2 planes as recited in claim 12 wherein the step of selecting said fill method
3 includes the steps of storing manufacturing design rules, and selecting said
4 fill method responsive to said stored manufacturing design rules.